The Dynamics of large herbivore populations in changing environments: towards appropriate models. Norman Owen Smith (ed.), Wiley-Blackwell, 2010. ISBN 978-1-4051-9895-0 (paperback). 202 pp. £34.99.

This book originates from a specialist working group established at the National Center for Ecological Analysis and Synthesis at the University of California, Santa Barbara. Against a backdrop of global change and consequent fluctuations in the vegetation resources on which ungulates depend, it seeks to provide a definitive understanding of what is currently known about the population dynamics of large herbivores through a reassessment of existing models. In particular it aims to provide greater fit between population models and empirical findings and to enable more effective identification of the factors and processes causing changes in large herbivore abundance. In so doing it draws together a small but formidable group of authors, all of whom are acknowledged experts in the field, and provides a cutting edge synthesis of current understanding.

The book is organised into seven chapters and begins with a summary of eight particularly influential, long-term studies of herbivore populations drawn mainly from northern temperate environments, including the classic studies of Soay sheep on Hirta and red deer on the Isle of Rum. It then provides an overview of the range of population models currently in use in order to identify current shortcomings in understanding. The subsequent four chapters explore in more detail the environmental influences governing changes in population abundance, with a focus on the interplay between model predictions and empirical findings. Topics covered in these chapters include climatic influences, demographic processes, irruptive dynamics and how landscape heterogeneity shapes the dynamics of large herbivore populations. This latter chapter is particularly effective in explaining the importance of spatial heterogeneity in stabilising ungulate population dynamics, by providing forage of different quantity and quality, which can be utilised at different time points and thus buffer against temporal variation in plant production and availability. The final chapter revisits and reworks some of the earlier models in light of these discussions. This is where the practical value will lie for those interested in current thinking about modelling herbivore populations, although much of what is presented draws on other studies and emphasises future directions for research rather than providing any radical additions to understanding.

In sum this is not a text for generalists, but will provide a useful resource for those with a particular interest in understanding how environmental change is affecting large herbivore populations and how this can be modelled. If I have one minor criticism it is that for a relatively small, paperback text of barely 200 pages, £34.99 seems rather expensive, even for a specialist audience.

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